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PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/JUNE 1987

Consumers Rate New Packages

...PACKAGING's 3rd annual survey

Error-Free Packaging Line

Food Packers Test New Aluminum Can

Robots At IBM Pack Fragile Items

New Thrust For Barrier Plastics

Innovations From Japan

20814

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A CAHNERS PUBLICATION VOLUME 32 NUMBER 8

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INDUSTRIAL PACKAGING TO GROW 6.4% ANNUALLY

Film wrap will grow fastest among industrial materials

U.S. industrial packaging shipments are projected to increase 6.4% annually and will exceed $27 billion in sales by 1990, according to a recent study published by The Freedonia Group Inc., Cleveland.

Fiber boxes will continue to dominate primary packaging with shipments of nearly $16 billion in 1990, primarily due to expanding applications to growing markets such as consumer electronics.

The fastest growing industrial packaging material will be plastic film wrap, projected to increase 9% per year to total 1.7 billion pounds by 1990 as it continues to replace traditional strapping applications. Wood pallets will continue to dominate load unitizing products. Replacement of diposable wood pallets by fibreboard slip sheets will be somewhat deterred by high converting costs.

For more information on the report, contact The Freedonia Group, 2940 Noble Road, Cleveland, Ohio 44121.

MICROWAVE PACKAGING TO HIT $340 MILLION

Shifting demographics will drive growth

Sales of advanced microwavable packaging for prepared foods will reach 2.2 billion units, or $340 million in sales by 1991, according to a new study published by C.H. Kline & Co., Fairfield, N.J.

According to the study, nearly 60% of these sales will be for entrees and dinners with popcorn and pizza combining for an additional 27%.

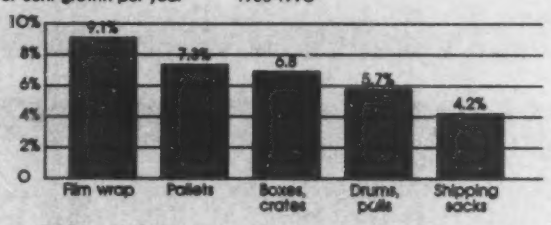
Shifting consumer lifestyles and the emergence of more women in the workplace are the primary forces behind the nearly 70% annual rate of growth forecast for microwavable packaging through 1991. By that time, 80% of U.S. households will own a microwave oven, the report predicts.

Two major types of advanced packages will grow in use, according to the study. Susceptors, or metallized films laminated to paper or plastic carriers, will provide localized heating or browning in such products as popcorn or pizza. Guidance foil systems, or selective channeling of microwave energy through packaging, will emerge in such applications as trays for frozen dinners where, combined with susceptors, entrees can brown and cook while the dessert stays cool.

For further information on *Advanced Microwavable Packaging*, contact C.H. Kline & Co., Inc., 330 Passaic Ave., Fairfield, N.J. 07006.

INDUSTRIAL PACKAGING GROWTH BY MATERIAL

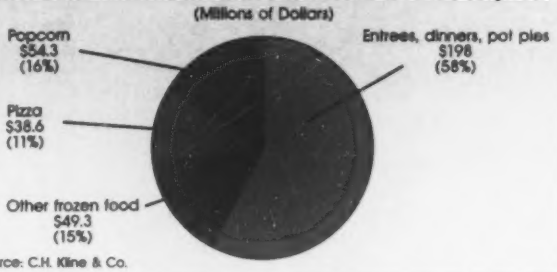
Per cent growth per year 1985-1990



Source: The Freedonia Group Inc.
PET containers are forecast for increased growth between 1989 and 1991.

MICROWAVABLE PACKAGE SALES BY PRODUCT, 1991

(Millions of Dollars)



Source: C.H. Kline & Co.

PACKAGING LEADTIMES (in weeks)

	Apr. '87	Mar. '86	Apr. '86
Metal cans	3.3	3.4	3.0
Composite cans	3.2	3.4	3.4
Glass containers	3.8	4.1	4.8
Plastic bottles	3.8	4.1	4.8
Plastic film	3.8	4.0	3.6
Laminates	4.3	4.5	4.8
Corrugated containers	3.2	2.9	2.9
Multiwall bags	3.8	4.7	3.7
Kraft paper	3.4	3.5	3.1
Folding cartons	3.7	4.2	3.2
Fiber drums	3.2	3.1	3.4
Industrial crates	3.2	2.9	3.2
Strapping	3.2	2.6	2.7
Steel drums (shipping)	3.2	3.0	3.3
Pallets	2.5	2.6	2.9

Source: Purchasing, a Cahners Publication

TRANSACTION PRICES

	Apr. '87	Mar. '86	Apr. '86
Aluminum can stock ($/lb.)	1.00	1.00	1.05
LDPE/liner($/lb.)	.31	.28	.30
LDPE/clarity($/lb.)	.35	.33	.35
LLDPE/butene($/lb.)	.30	.28	.30
LLDPE/octene($/lb.)	.36	.34	.34
HDPE/blow molding($/lb.)	.36	.32	.33
HDPE/film grade($/lb.)	.35	.35	.36
Polystyrene/general purpose($/lb.)	.46	.40	.32
Polystyrene/impact($/lb.)	.49	.43	.35
PVC/general purpose($/lb.)	.33	.32	.31
PP/homopolymer($/lb.)	.38	.36	.36
PP/copolymer($/lb.)	.48	.46	.46
ABS($/lb.)	1.06	1.03	.98
Unbleached kraft/shipping sack($/ton)	460	460	405
Unbleached kraft/grocery sack($/ton)	400	400	300
Linerboard, 42 lb. east($/ton)	350	350	260
Linerboard, 42 lb., west($/ton)	350	350	275
Corrugated medium, semichemical($/ton)	320	320	255
Recycled folding boxboard, clay coated($/ton)	400	400	375
Recycled folding boxbd., chipbd.($/ton)	310	310	290
Bleached kraft, folding carton($/ton)	600	600	565

Source: Purchasing, a Cahners publication

PLASTIC TO CONTINUE REPLACING METAL CANS

Metal's extinction far from likely, report says

Replacement of metal cans by plastic containers for food and general packaging categories will grow from 1.2 billion units in 1985 to about 4.3 billion units in 1995, according to a recent study by Omega Research Associates Inc., Pittsburgh.

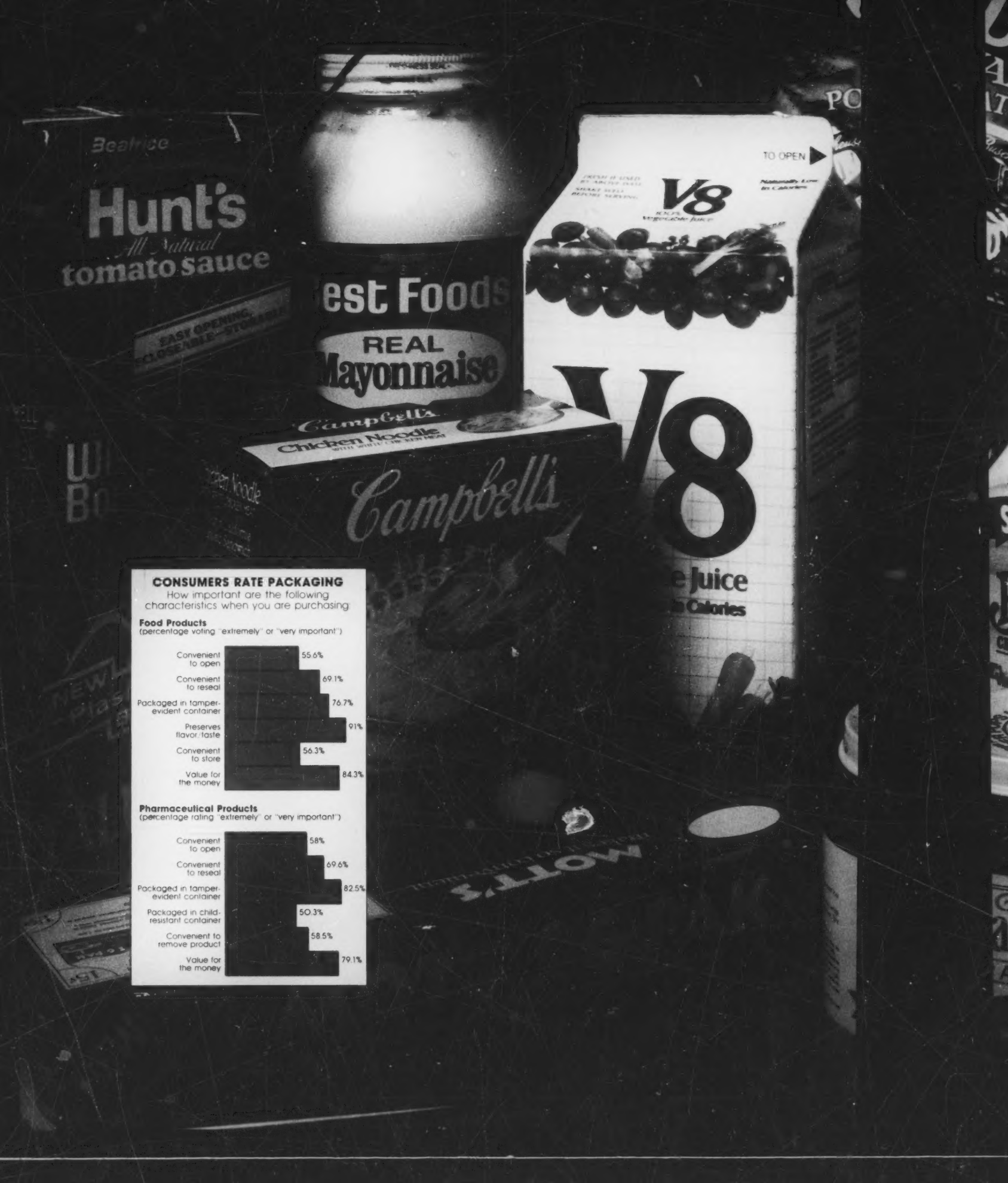
According to *Metal Cans and the Impact of Plastic Replacements*, most canned food products will decline in popularity over the next 10 years, although a few categories such as such as canned seafood will show modest increases. The No.10 can will give ground to new improved flexible packaging structures suitable for hot-fill and retorting.

The potential for metal can replacement by plastics is greatest in general packaging, including aerosols and rigid containers for paints, coatings and other nonfood products. Metal can replacement by plastic in this category was nearly 1 billion units in 1985 and might reach 2.8 billion units in 1995.

For further information, contact Omega Research Associates Inc., 5907 Penn Ave., Suite 215, Pittsburgh, Pa. 15206.

MORE STATS . . .

Folding carton shipments for February reached a dollar volume of $283.4 million, up 2.5% over last year, the **Paperboard Packaging Council** reported . . . The **Fibre Box Association** continues to report record shipments of corrugated and solid fiber products. February's figure of 22.7 billion square feet shipped represents a new record for that month. Year-to-date industry shipments are 2.6% ahead of last year's record pace . . . The Consumer Packaged Goods Index from **Cahners Economics**, which tracks output of major manufacturers, is predicted to grow slightly slower than last year's 4.1% gain to finish at 3.6%.


Beatrice
Hunt's
All Natural
tomato sauce
EASY OPENING
CLOSEABLE—STORABLE
est Foods
REAL
Mayonnaise
Campbell's
Chicken Noodle
Campbell's
TO OPEN
V8
V8
Juice
Calories
CONSUMERS RATE PACKAGING
How important are the following characteristics when you are purchasing:
Food Products
(percentage voting "extremely" or "very important")
Convenient to open 55.6%
Convenient to reseal 69.1%
Packaged in tamper-evident container 76.7%
Preserves flavor/taste 91%
Convenient to store 56.3%
Value for the money 84.3%
Pharmaceutical Products
(percentage rating "extremely" or "very important")
Convenient to open 58%
Convenient to reseal 69.6%
Packaged in tamper-evident container 82.5%
Packaged in child-resistant container 50.3%
Convenient to remove product 58.5%
Value for the money 79.1%

SPECIAL REPORT

CONSUMER SURVEY REVEALS SURPRISES

Do consumers like squeezable containers for food products? If a food package is microwavable, how often does this influence consumers to buy the product? Do consumers feel that manufacturers of food and pharmaceutical products are doing enough with packaging to protect them from tampering? Do consumers check for codes or expiration dates on packages?

These are but four of 38 questions asked of 1,000 consumers nationwide as part of PACKAGING's third annual Consumer Survey, conducted for PACKAGING by NFO Research Inc., Chicago. Consumer households were selected based on U.S. Census data on geographic divisions, market size within each division, age of female householder, annual household income and household size. NFO conducted the survey earlier this year and tabulated the results based on a return exceeding 72%.

This article presents the answers to the above packaging questions plus a host of others. Some of them may surprise you.

Consumers clearly rate packaging characteristics as extremely or very important when purchasing products.

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Those consumers trying products in squeeze bottles are [illegible] satisfied with the package

91.4% of squeezable ketchup users were satisfied with the package

Clearly, consumers are very aware of the role of packaging when making food and pharmaceutical purchases. The most important characteristic for a food package is that it preserves the product's flavor and taste; 91% of the respondents rated this as extremely or very important. Following were "value for the money" at 84.3%, "packaged in a tamper-evident container" at 76.7% and "convenient to reseal"at 69.1%.

For pharmaceutical products, increased consumer awareness of tamper evidence was reflected in this year's survey. "Packaged in a tamper-evident container" topped the list of extremely or very important package characteristics by 82.5% of the survey, followed by "value for the money" at 79.1%.

Squeezing on the rise

Among the highlights of 1986 and early 1987 is the introduction of more and more food products in plastic squeeze bottles. Some of the more exotic have included pickle relishes, dessert toppings and steak sauces. Whatever the product, consumers appear willing to keep giving squeeze bottles a try.

Compared to last year, the number of consumers saying they've tried ketchup in a squeeze bottle grew from 57.8% to 65.9%. Those trying squeeze mayonnaise and jelly also grew, from 4.7% to 12.2% and from 16.9% to 24.1%, respectively. Salad dressing, not included in last year's survey, was tried by 11.1% of those surveyed.

Trying usually leads to liking. When asked if they were satisfied with the squeeze bottle, 91.4% of the ketchup users said yes along with 76.1% of the mayonnaise users, 69% of the jelly users and 83.8% of salad dressing squeezers.

Traditional packaging options should not be abandoned entirely, however. Last year's response to the question, "If you have not purchased any of the above products in a plastic squeeze container, why not?" the largest response from the entire survey was "Haven't seen them" at 28.6%. This year, where only those who had not tried squeeze bottles responded, that answer was indicated by 21.2% of the survey, which placed third behind "I like glass better" at 44.3% and "They are expensive" at 37.9%.

In light of traditional vs. non-traditional packages, consumers were evenly divided over the idea of shelf-stable entrees. Phrased "If a new packaging process were developed that permitted beef stew or turkey dinners to be sold on the supermarket shelf, not frozen or refrigerated but in a plastic container/carton, how likely would you be to try this new product?" 35.9% answered they probably or definitely would try it, 29.1% said they might or might not try it and 33.8% said they probably or definitely would not try it.

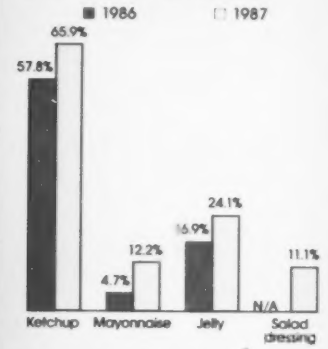
Are young people more receptive to such new products than older people? Examining the demographics on this question reveals little bias regarding age or the presence of children. Among those likely to try new shelf-stable entrees, young singles and older singles registered 4.6% and 8.1% of the total while young parents and older parents registered 11.6% and 17%, respectively.

The same balance holds true on the other side of the question. Among those not willing to try the new entrees, young and older singles were a respective 4.5% and 13.1% of their total while young and older parents represented 12.3% and 13.1%.

Another recent packaging development is the retortable plastic container. Responding

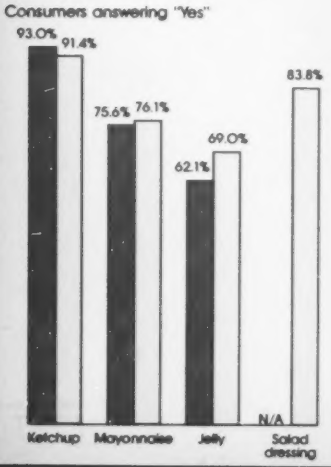
CONSUMERS TRY MORE SQUEEZABLES

Have you purchased any of these products in plastic squeeze bottles?



If you have, were you satisfied with the package?

Consumers answering "Yes"



76.4% said that microwavable packages influence their decision to buy the product, at least sometimes

to "There are several food products packaged in new plastic cans (soup, spaghetti, etc.) Would you like to see more items packaged this way?" 19.1% said yes, 8.6% said no and 69.3% said they were not familiar with such products.

The microwave factor

Depending on which study you read, the microwave oven resides in nearly, about or slightly more than 50 per cent of American households. Using a microwave oven, however, extends beyond the home as the appliances are becoming more familiar sights in convenience stores, offices, cafeterias and other outlets.

Correspondingly, microwave oven use is up in this year's survey; 73.5% of respondents reported using a microwave oven compared to 65.2% last year. "Use" ties strongly to "own" as 95.5% of those who reported using a microwave oven also own one.

Among age groups, who uses the microwave most? Children in the household seems to be a telling factor. Young singles, middle singles and older singles reporting microwave oven use were 4.5%, 8.3% and 6.2%, respectively, of the 73.5% total. Young parents, middle parents and older parents tallied 14%, 15.7% and 16.2%, respectively.

Whether the microwave is used at home or away, package microwavability is exerting a growing purchasing influence on consumers, at least on an occasional basis.

In response to the question, "If the food package is microwavable, how often does this influence your decision to buy the product?" 13.2% answered "almost always," up from 11.4% last year; 15.5% answered "usually," down from 20.0% last year; and "sometimes" garnered 47.7%, up from 39.4% in 1986. Those answering "rarely" dropped from 46.2% in 1985 to 22.3% this year.

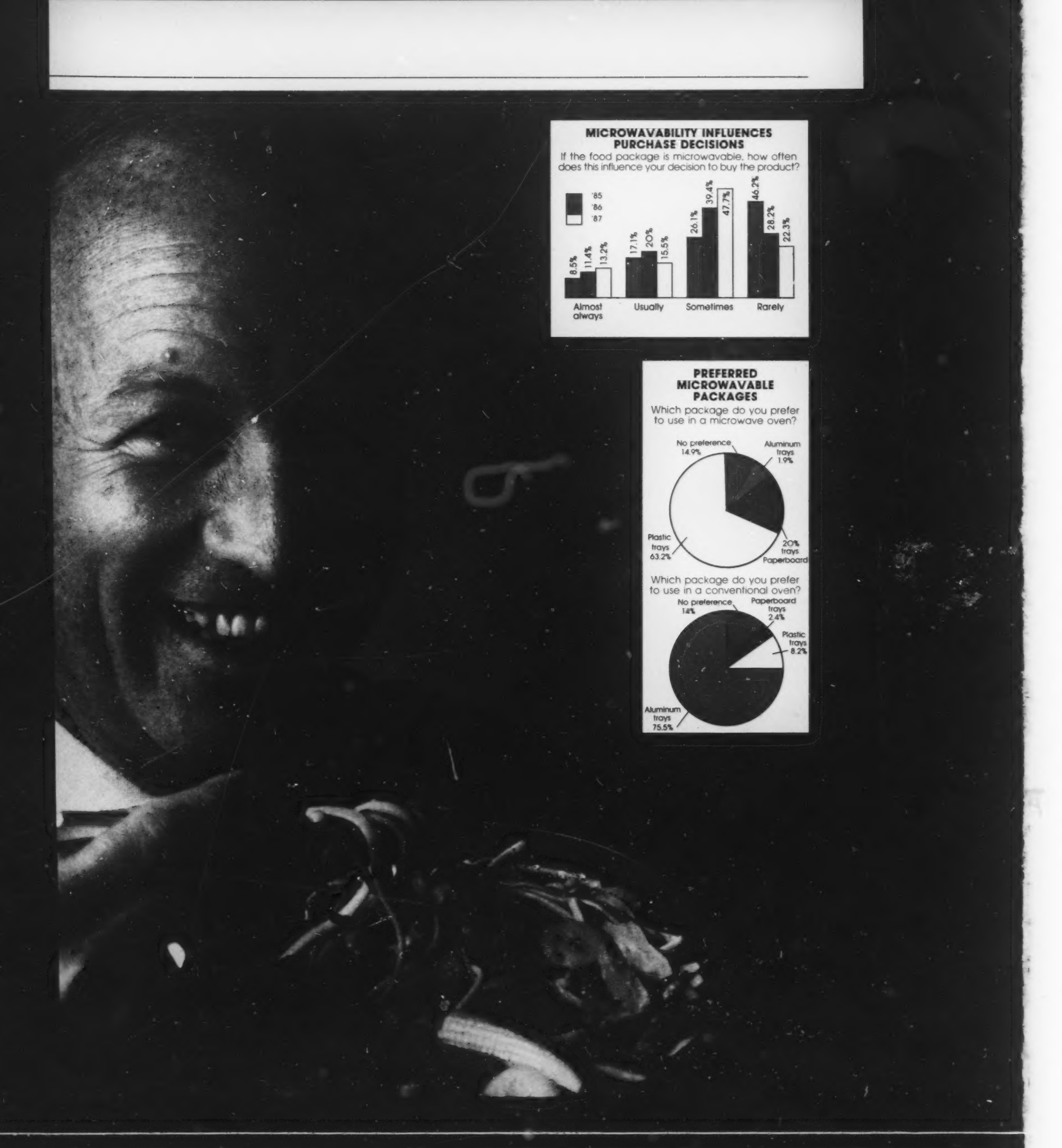
Food package preferences differ radically depending on how the item will be cooked. Plastic trays are the package of choice for microwave ovens, preferred by 63.2% of microwave oven users followed by paperboard trays at 20%, aluminum trays at 1.9% and 14.9% expressing no preference. However, when asked for the package they preferred to use in a conventional oven, consumers strongly endorsed the aluminum tray at 75.5% of the total survey with plastic trays trailing at 8.2% followed by paperboard trays at 2.4%.

Label likes and dislikes

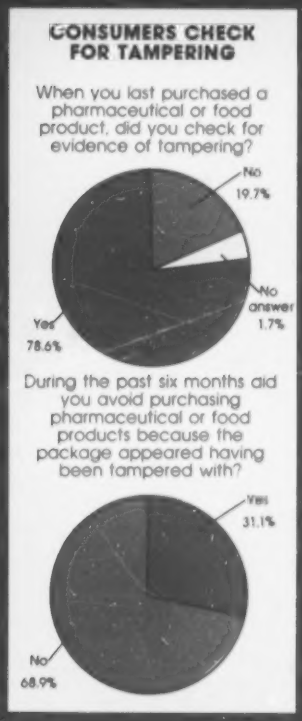
Where do consumers feel food labeling is doing a good job vs. areas where it could stand improvement? In respect to listing of ingredients and directions of product preparation, 82.9% and 78.9% of consumers, respectively, rated food labels as excellent or good in these areas compared to 14.4% and 17.9% who rated them fair or poor.

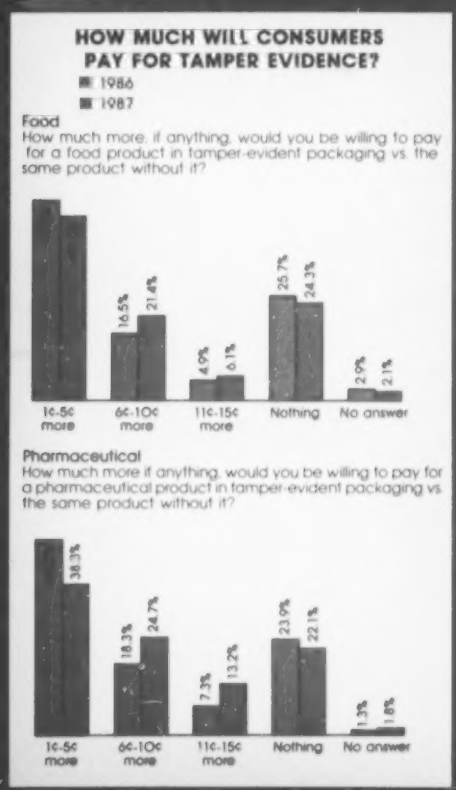
However, regarding accuracy of the product photograph in relation to the actual

Microwavable packaging is exerting a growing influence on consumers to purchase microwavable food products.


MICROWAVABILITY INFLUENCES PURCHASE DECISIONS
If the food package is microwavable, how often does this influence your decision to buy the product?
'85
'86
'87
8.5%
11.4%
13.2%
17.1%
20%
15.5%
26.1%
39.4%
47.7%
46.2%
28.2%
22.3%
Almost always
Usually
Sometimes
Rarely
PREFERRED MICROWAVABLE PACKAGES
Which package do you prefer to use in a microwave oven?
No preference 14.9%
Aluminum trays 1.9%
Plastic trays 63.2%
20% Paperboard trays
Which package do you prefer to use in a conventional oven?
No preference 14.8%
Paperboard trays 2.4%
Plastic trays 8.2%
Aluminum trays 75.5%

Nearly a third of consumers surveyed have avoided purchasing products this year because a package appeared tampered with.


CONSUMERS CHECK FOR TAMPERING
When you last purchased a pharmaceutical or food product, did you check for evidence of tampering?
No 19.7%
No answer 1.7%
Yes 78.6%
During the past six months did you avoid purchasing pharmaceutical or food products because the package appeared having been tampered with?
Yes 31.1%
No 68.9%



78.6% of consumers reported checking purchases for signs of tampering

product and providing information about the purpose of additives, consumers were less approving. Approximately 53% rated food labels as only fair or poor regarding prouct photo accuracy compared to 42.9% rating them excellent or good; 50.5% rated labels as fair or poor on providing information on the purpose of additives while 45.8% rated them excellent or good.

Tamper awareness grows

Reports of tampered products across the country rose from an estimated 128 in 1985 to an alarming 1,600 and above last year, prompting FDA commissioner Frank Young to label 1986 a "year of crisis."

That statistic has not been lost on the American consumer. When asked if they checked for evidence of tampering on food and pharmaceutical purchases, 78.6% responded yes, 19.7% said no and 1.7% didn't answer.

Those checking are relatively balanced across the life-stage spectrum. Young singles, middle singles and older singles reporting yes were were 4.9%, 10.8% and 9.2%, respectively, of the total. Young couples, working older couples and retired older couples who checked were 7.1%, 12.5% and 12.3% of the total while young parents, middle parents and older parents came in slightly higher at a respective 14.1%, 13.2% and 15.2%. All ages and lifestyles, it seems, are growing in tamper awareness.

And suspicious-looking packages are likely to be avoided by consumers. Nearly a third of the survey (31.1%) reported not purchasing a food or pharmaceutical product recently because the package appeared tampered with.

Will consumers pay more for over-the-counter drugs in tamper-evident packages vs. the same products without? While 22.1% said no, 38.3% said yes to 1 cent to 5 cents more, 24.7% would pay from 6 cents to 10 cents more and 13.2% would pay from 11 cents to 15 cents more.

The answers are roughly the same for food products. Approximately 24.3% of consumers surveyed would pay no more for food in tamper-evident packaging while 46.2% would pay 1 cent to 5 cents more, 21.4% would pay 6 cents to 10 cents more and 6.1% would pay 11 cents to 15 cents difference.

Consumers also are eager to see more food products in tamper-evident packaging. In response to the question, "Which of the following types of foods do you feel should be packaged in tamper-evident packaging?" 75.2% said candy, 73.5% said cottage cheese, the same amount indicated cereals, 71.3% said meat, 70.3% said peanut butter and 69.1% said cheese. The list also included potato chips, spices, yogurt and pet food, which garnered a 42.7% response.

In light of these figures, should manufacturers of food and pharmaceutical products be doing more regarding tamper-evident packaging? Somewhat surprisingly, 68.7% of the survey felt food and pharmaceutical producers were doing enough with their packaging to protect them from a tampered product; 27.7% thought otherwise.

Freshness is important

Along with checking for tampering, consumers pay close attention to expiration date marking as well. When asked, "Before purchasing products, do you look for a code/expiration date on the package?" 86.5% responded yes and only 12.1% said no. Correspondingly, 91.5% of the survey felt that freshness of their food purchases was extremely or very important to them. Consumers are ap-

Glass jars received a 4.3 on a scale of 1 to 5 for preserving flavor and taste

parently satisfied with packaging's performance where protecting freshness is concerned as 67% said they discard packaged food products because they lose freshness only once a month or less.

Rating the containers

On a scale of 1 to 5, with 1 being poor and 5 being excellent, consumers were asked to rate food and pharmaceutical containers for a variety of characteristics.

Taken separately, the food containers included the squeeze bottle, glass jar, metal can, snack pouch, carton with inner bag and plastic jar. The characteristics to be measured were convenient to open, convenient to reseal, packaged in a tamper-evident container, preserves flavor and taste, convenient to store and value for the money.

While there were no perfect 5s, the glass jar garnered the highest mean score of 4.4 for convenience of resealing along with the squeeze bottle and the plastic jar which received marks of 4.3 and 4.1 respectively. The glass jar scored highest for preserving flavor and taste with a 4.3, followed by the plastic squeeze bottle with a 3.7 and the plastic jar at 3.6. The tamper-evidence title went to the metal can with a 4.3, which was also the consumers' pick for best value for the money at 3.9 followed closely by the glass jar at 3.7

The results for pharmaceutical containers were just as interesting. The containers were blister packs, a bottle with a neck-band seal, a bottle with an inner seal, a bottle with a child-resistant cap, a carton with a printed overwrap and a bottle contained in a canister with a pull ring. The characteristics for rating them were convenient to open, convenient to reseal, packaged in a tamper-evident container, packaged in a child-resistant container, convenient to remove product and value for the money.

Not surprisingly, considering the increased number of tamper-evident packages among pharmaceutical products, none of the containers were rated as particularly easy to open or reseal. The shrink-sleeve neck band and the bottle-in-a-canister tied for the highest rating for tamper evidence at 4.1, followed closely by the bottle with the inner seal with a 4.0 mark.

Also, none of the containers were rated as particularly excellent or very poor values for the money. The highest mark was a 3.6 for the bottle with an inner seal, but none of the other containers scored below a 3.1

Recycling interest high

Asked the question, "How important is recycling to you?" nearly 82% of consumers answered either extremely or somewhat important.

Taking the point further, the question was asked "Would you be willing to separate such items as glass, cans and paper from household trash so that they could be collected separately?" The number of consumers answering yes rose to 82% this year compared to 76.2% last year while the number of those saying no dropped from 22.8% in 1986 to 16.4%.

Recyclability of the package is a growing factor in purchasing decisions compared to last year. Responding to "How often does the recyclability of a package affect your decision to buy one product over another?" 41.3% of consumers answered often or sometimes this year compared to 36.2% last year. Correspondingly, those saying seldom or never dropped from 63.9% last year to 57.2% this year. ■

RAY CHALMERS
Associate Editor

"Consumer opinion on packaging is growing more sophisticated and it deserves close attention. No longer do consumers take packaging for granted."

FOR FURTHER INFORMATION

Information contained in this article was condensed from more than 250 pages of tables and other information. The complete study contains in-depth consumer response information to 38 packaging-related questions and is available for $175 by contacting Consumer Survey Editor, PACKAGING, 1250 E. Touhy Ave., Des Plaines, Ill. 60018. For more information, circle **463** on the Reader Service Card.

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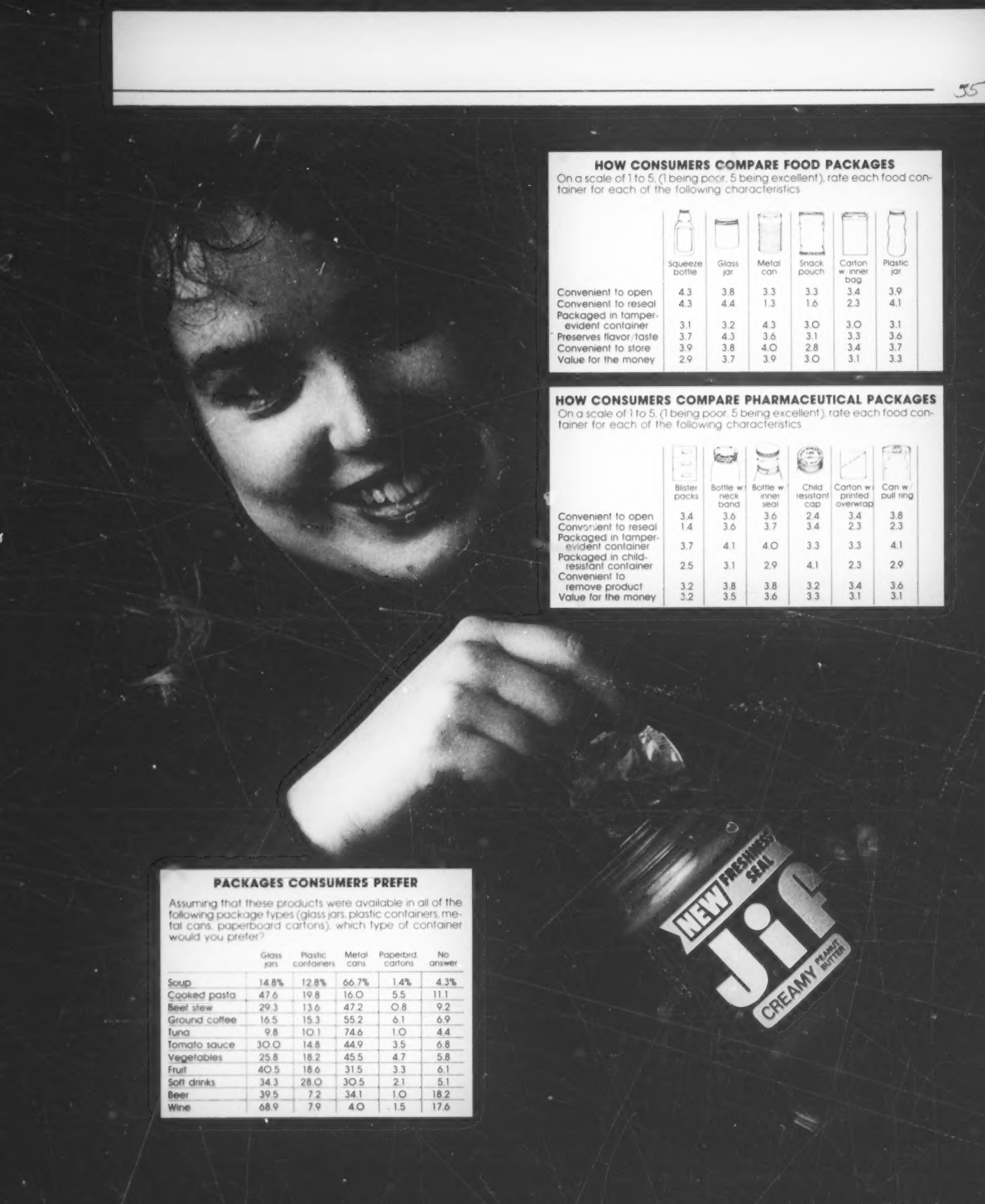

HOW CONSUMERS COMPARE FOOD PACKAGES

On a scale of 1 to 5, (1 being poor, 5 being excellent), rate each food container for each of the following characteristics

	Squeeze bottle	Glass jar	Metal can	Snack pouch	Carton w/ inner bag	Plastic jar
Convenient to open	4.3	3.8	3.3	3.3	3.4	3.9
Convenient to reseal	4.3	4.4	1.3	1.6	2.3	4.1
Packaged in tamper-evident container	3.1	3.2	4.3	3.0	3.0	3.1
Preserves flavor/taste	3.7	4.3	3.6	3.1	3.3	3.6
Convenient to store	3.9	3.8	4.0	2.8	3.4	3.7
Value for the money	2.9	3.7	3.9	3.0	3.1	3.3

HOW CONSUMERS COMPARE PHARMACEUTICAL PACKAGES

On a scale of 1 to 5, (1 being poor, 5 being excellent), rate each food container for each of the following characteristics

	Blister packs	Bottle w/ neck band	Bottle w/ inner seal	Child resistant cap	Carton w/ printed overwrap	Can w/ pull ring
Convenient to open	3.4	3.6	3.6	2.4	3.4	3.8
Convenient to reseal	1.4	3.6	3.7	3.4	2.3	2.3
Packaged in tamper-evident container	3.7	4.1	4.0	3.3	3.3	4.1
Packaged in child-resistant container	2.5	3.1	2.9	4.1	2.3	2.9
Convenient to remove product	3.2	3.8	3.8	3.2	3.4	3.6
Value for the money	3.2	3.5	3.6	3.3	3.1	3.1

PACKAGES CONSUMERS PREFER

Assuming that these products were available in all of the following package types (glass jars, plastic containers, metal cans, paperboard cartons), which type of container would you prefer?

	Glass jars	Plastic containers	Metal cans	Paperbrd. cartons	No answer
Soup	14.8%	12.8%	66.7%	1.4%	4.3%
Cooked pasta	47.6	19.8	16.0	5.5	11.1
Beef stew	29.3	13.6	47.2	0.8	9.2
Ground coffee	16.5	15.3	55.2	6.1	6.9
Tuna	9.8	10.1	74.6	1.0	4.4
Tomato sauce	30.0	14.8	44.9	3.5	6.8
Vegetables	25.8	18.2	45.5	4.7	5.8
Fruit	40.5	18.6	31.5	3.3	6.1
Soft drinks	34.3	28.0	30.5	2.1	5.1
Beer	39.5	7.2	34.1	1.0	18.2
Wine	68.9	7.9	4.0	1.5	17.6